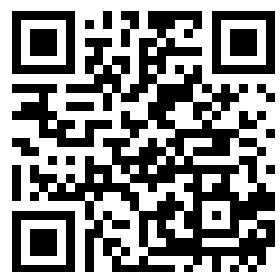


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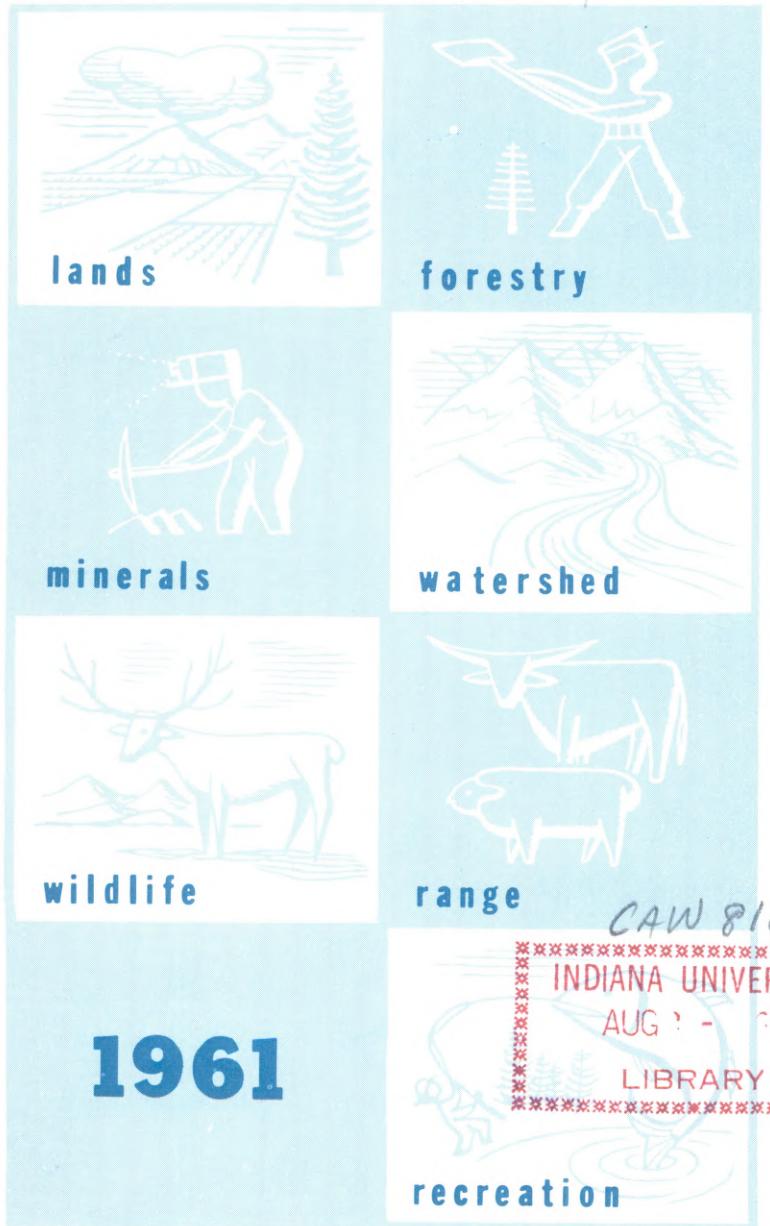


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# BLM AT WORK IN NEW MEXICO

I53.2:  
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UNITED STATES DEPARTMENT OF THE INTERIOR

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Stewart L. Udall, Secretary, BUREAU OF LAND MANAGEMENT, Karl S. Landstrom, Director

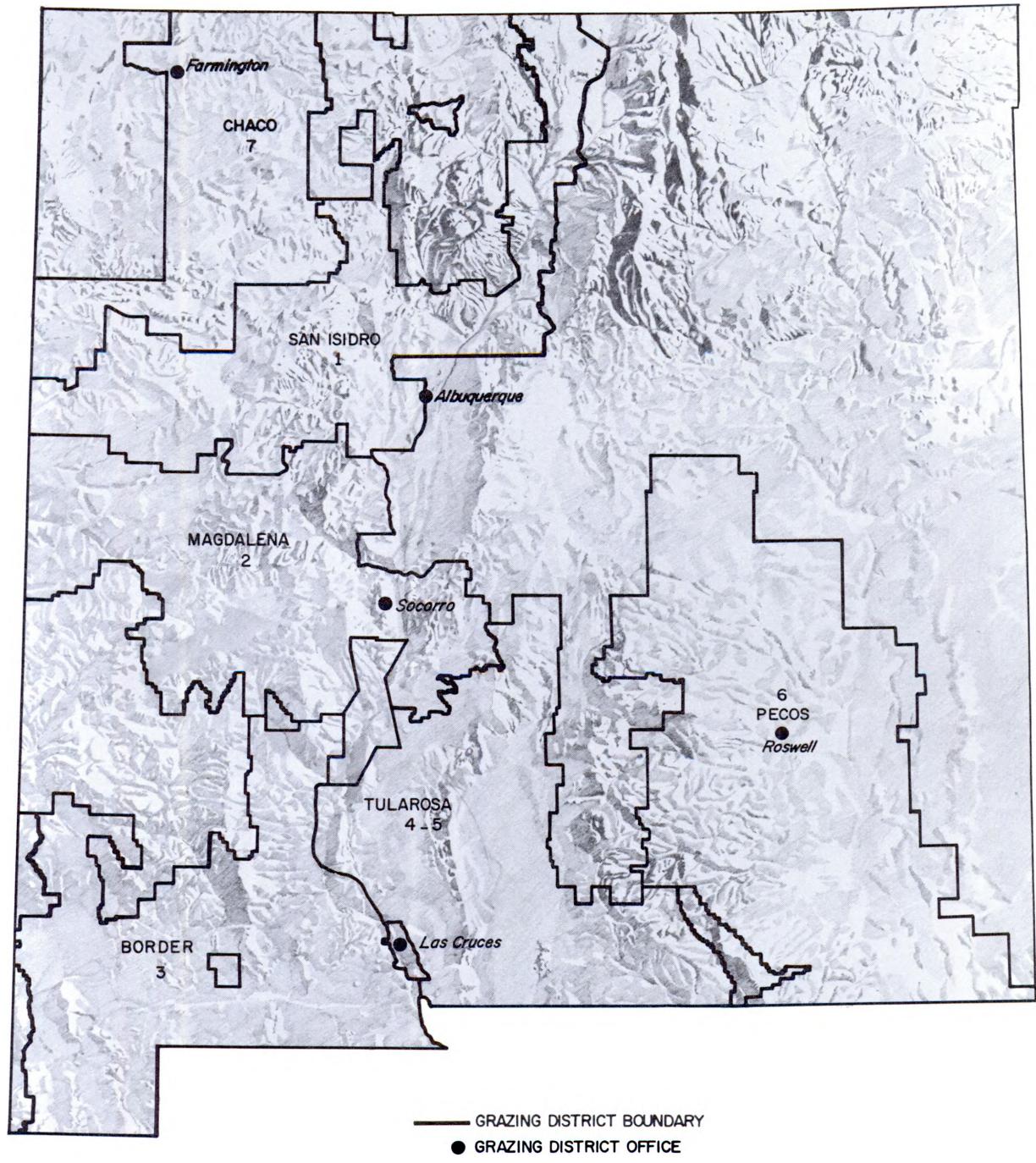
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# *Land Management in Action*

NEW MEXICO  
1961





"THE FEDERAL GOVERNMENT OWNS NEARLY 770 MILLION ACRES OF PUBLIC LAND, MUCH OF IT DEVOTED TO A VARIETY OF ESSENTIAL USES. BUT EQUALY IMPORTANT ARE THE VACANT, UNAPPROPRIATED AND UNRESERVED PUBLIC DOMAIN LANDS, AMOUNTING TO SOME 477 MILLION ACRES—A VITAL NATIONAL RESERVE THAT SHOULD BE DEVOTED TO PRODUCTIVE USE NOW AND MAINTAINED FOR FUTURE GENERATIONS.

"MUCH OF THIS PUBLIC DOMAIN SUFFERS FROM UNCONTROLLED USE AND A LACK OF PROPER MANAGEMENT. MORE THAN 100 MILLION ACRES OF OUR FEDERAL GRAZING DISTRICTS ARE PRODUCING LIVESTOCK FORAGE WELL BELOW THEIR POTENTIAL. WE CAN NO LONGER AFFORD TO SIT BY WHILE OUR PUBLIC DOMAIN ASSETS SO DETERIORATE.

"I AM, THEREFORE, DIRECTING THE SECRETARY OF THE INTERIOR TO:

(1) ACCELERATE AN INVENTORY AND EVALUATION OF THE NATION'S PUBLIC DOMAIN HOLDINGS TO SERVE AS A FOUNDATION FOR IMPROVED RESOURCE MANAGEMENT;

(2) DEVELOP A PROGRAM OF BALANCED USAGE DESIGNED TO RECONSILE THE CONFLICTING USES—GRAZING, FORESTRY, RECREATION, WILDLIFE, URBAN DEVELOPMENT, AND MINERALS; AND

(3) ACCELERATE THE INSTALLATION OF SOIL AND WATER SAVING WORKS AND PRACTICES TO REDUCE EROSION AND IMPROVE FORAGE CAPACITY; AND TO PROCEED WITH THE REVEGETATION OF RANGE LANDS ON WHICH THE FORAGE CAPACITY HAS BEEN BADLY DEPLETED OR DESTROYED."

President's Special Message to Congress  
on Natural Resources, February 23, 1961.

*Range*



# *and Forestry*



## RANGE MANAGEMENT

The Bureau of Land Management in New Mexico has jurisdiction over approximately 14 million acres of the national land reserve. In respect to the surface resources of these 14 million acres, BLM is responsible for administering the use, protection, and development of them.

Practically all these lands are under grazing leases and permits, and they are suitable only for grazing by livestock and wildlife. The Bureau's range management program is designed to assure orderly range use and to stabilize the livestock industry dependent upon the national land reserve.

The Range Division controls grazing and range activities through granting grazing leases and permits which are limited to protect the productivity of the lands and to permit the highest use of the forage resources. BLM is also concerned with providing forage for big game animals and other wildlife and with assuring access to public lands for all lawful purposes.

Proper land use helps land rehabilitation, but standing alone it is not sufficient to restore plant cover. Therefore, the range management program includes various projects for resources development, such as soil and moisture conservation, range improvement, and weed control, all coordinated with grazing administration.

*Roundup on New Mexico's eastern plains is a busy time for the cowboys. These cattle are headed for the branding and culling pens.*

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*Spraying equipment used in weed control.*

## GRAZING ADMINISTRATION

Proper grazing administration involves considerable technical analysis. Range studies are essential to gear the use of the land to the available forage and to prevent over-grazing which will result in soil erosion, water losses, and general depletion of the range. These studies concern initial forage inventory, range condition and trend, actual use, precipitation, and other controlling conditions. All this information is correlated to form the basis for decisions regarding range use.

BLM has six grazing districts in New Mexico which were established under the Taylor Grazing Act of 1934. Two of these districts are under the responsibility of one District Manager at Las Cruces. Each of the other districts has its own headquarters at Albuquerque, Socorro, Roswell, and Farmington.

Grazing privileges in the districts are authorized by licenses and permits which specify numbers and classes of livestock and the seasons of use of the Federal range. A large part of the grazing permits call for yearlong use of the range. In calendar year 1960, permits were issued to 4,100 ranchers to graze approximately 259,000 cattle and horses and some 446,000 sheep and goats. In addition, the Federal range forage supported an estimated 40,000 big game animals throughout the year in the grazing districts.

A major portion of the Federal range in the grazing districts has been assigned to individual ranch operations. Most of these areas have been fenced by the ranchers. Thus, the problem of attaining proper land use and good resource management is dependent upon studies of individual allotments and working with the various ranchers individually. This is the responsibility of trained and experienced range personnel attached to the district staff.

Grazing administration personnel and those engaged in field work in connection with soil and moisture conservation and range improvements, are always alert to detect any infestation of poisonous plants not already known or common in New Mexico.

Two species, not yet known in New Mexico, constitute a serious threat if they invade the State. One is Halogeton, found in the neighboring states to the north and northwest. The other is Alfombrilla, which has caused serious death loss in livestock and big game animals in the State of Chihuahua, Mexico. Alfombrilla has spread to a point within a few hundred yards of the Mexican border at a point southwest of Deming, New Mexico.

## MULTIPLE USE

Multiple Use of the public land means balanced resource management. Balanced in terms of the entire management system — 477 million acres. Balanced in terms of public interest — 180 million citizens.

In 1960 multiple use became the official policy of the United States Government in managing national forests. These same principles are now being applied to the public domain lands and resources by BLM in New Mexico.

Multiple use is a planning and programming concept, lands must first be classified for their highest and best use, and then that use must be interwoven into the entire management system.

Multiple use requires constant planning. The plains and forests of the national land reserve are used for grazing, timber and water production, and many other uses. In cooperation with the multiple use advisory boards, BLM carefully balances all uses in terms of the public interest.

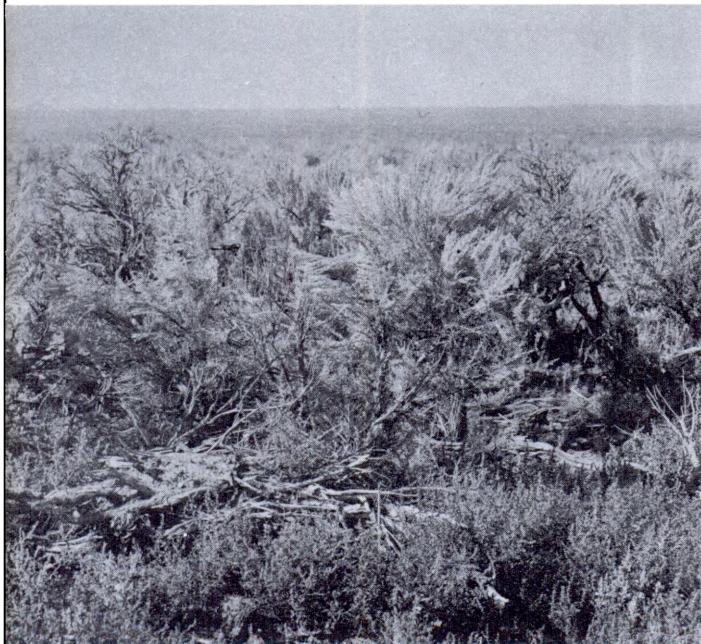
Hundreds of big game and countless smaller animals make their homes on public lands. Like other crops, wildlife needs care. Effects on wildlife habitat must be considered in developing mineral, water, range and timber programs.

Some types of recreation on public lands are an American tradition. Rich in wildlife resources, the public lands are available for hunting and fishing and wildlife photography.



*Sheep grazing on a winter range in the Albuquerque District.*

## LAND TREATMENT



*Typical stand of big sage brush in Albuquerque District before plowing and seeding.*



*Excellent stand of crested wheatgrass in same area after plowing and seeding.*

Proper land use helps to rehabilitate the range, but it cannot accomplish the task alone. Land treatment by mechanical means has speeded up development in many areas.

In northern New Mexico, on good soil sites where rainfall is relatively more adequate, big sagebrush has over-run large stretches of the land. Here, BLM has been clearing thousands of acres of brush, preparing the site and reseeding the range successfully. An increased cover of forage results.

In other locations, projects limited simply to an eradication operation are going forward to eliminate the invading sagebrush, juniper and pinon. This will free the existing forage from unwelcome competition and allow it to extend its coverage naturally.

Finally, on those sites where their use is effective, BLM has begun to carry on range pitting, ripping and contour furrowing to reduce the speed of runoff water and induce greater penetration of rainfall into the soil.

Contour ripping, although more expensive than pitting, has proven to yield more lasting benefits. Artificial seeding is sometimes combined with ripping to speed restoration of cover.

Protection of these areas is important. Accordingly, fences are built to insure against damage or interference.

Waterspreading is not allowed in the Rio Grande drainage but it is permitted in that part of northwestern New Mexico which drains into the Colorado River. Here, BLM has initiated waterspreading projects where conditions are favorable.



## FOREST MANAGEMENT

The major part of the national land reserve in New Mexico is natural grazing land and is not forested. It follows that the forestry program for BLM in this state is much smaller than the grazing activities.

Most of the commercial sawtimber land is in the National Forests and Indian Reservations, or on private lands. However, there are some 71,000 acres of commercial forest stands and some 2 million acres of woodland stands on public lands under the jurisdiction of BLM.

Forest Management on the national land reserve was initiated with the Materials Act of 1947, which legislation enabled BLM to sell timber and materials from public lands. Since this date, BLM has sold in New Mexico more than 30 million board feet of sawtimber and other forest products, netting approximately \$300,000.

Although the estimated allowable annual cut is a modest two million board feet, it helps support numerous local sawmill operations. Since 1947 BLM has authorized extraction of approximately two million tons of mineral materials, such as sand, gravel, stone, etc., by individuals and public agencies.

Reforestation in the western States has generally been a job of Nature. Under favorable circumstances and expert planning this can be a successful and economical method of obtaining reforestation. In the arid climate of New Mexico, the task of making cut-over acreage productive is a serious challenge.

Future reforestation programs for BLM in New Mexico include 4,000 acres of forest site improvement, 8,000 acres of reforestation, and 16,000 acres of stand improvement in New Mexico. No planting or seeding has yet been attempted.

## FIRE CONTROL

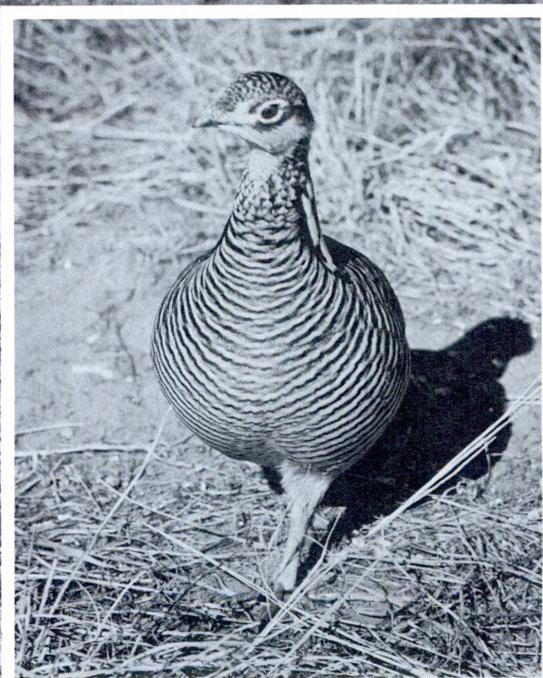
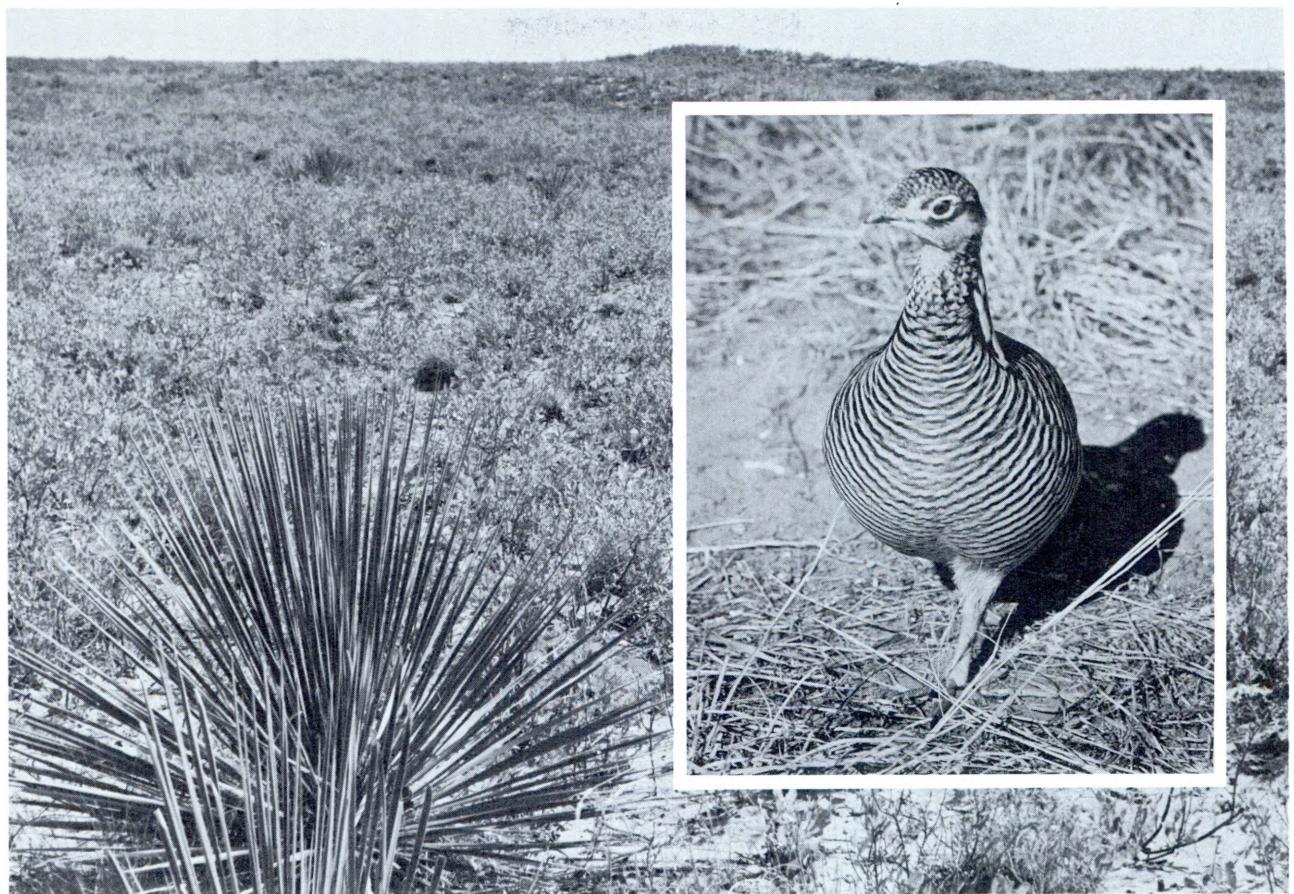
Fire Control is an important function in the protection and management of natural surface resources, including forage, woodland and timber stands, and wildlife habitat. Personnel in the Bureau's Division of Range and Forest Management are primarily responsible for fire control in the national land reserve.

The Bureau's fire control program for New Mexico embraces their own 14 million acres; and in accordance with cooperative agreements with other resource agencies, BLM personnel take initial action on wildfires occurring in adjacent lands which are under the jurisdiction of other authority.

Fortunately, there have been no large fires on national land reserve in New Mexico for several years. The limited acreage burned is credited to increased awareness of fire danger, public education in fire prevention, improved fire detection, and frequent inspection of fire-hazard areas during the normal fire season.

Between January and August of 1961, a total of 32 wildfires in New Mexico were suppressed by BLM. The total area burned has been held to 1,600 acres, which is the result of quick and effective suppression by BLM personnel and local cooperation. Of the 1,600 acres burned, about 600 only were national land reserve.





*A Prairie Chicken and natural habitat area.*

## **THE SOUTHWEST FOREST FIRE FIGHTERS**

The State of New Mexico takes pride in the local shock troops among fire fighters known as The Southwest Forest Fire Fighters. This organization has a devotion to duty and professional pride in their mission that compares favorably with the most elite military organizations.

In 1949 the Forest Service organized and equipped a crew of Mescalero Apache Indians and trained them in methods of fire suppression. This Mescalero "Red Hat" crew proved so outstandingly effective under pressure of big and dangerous fires that recruitment and training of additional Indian and Spanish-American crews followed.

Under Forest Service leadership and coordination, an inter-agency approach evolved with BLM, Park Service, Bureau of Indian Affairs, and State Forestry Commission collaborating enthusiastically in the program.

Today, fifty-seven crews from twelve pueblos and villages in New Mexico and Arizona are available, trained, equipped, and readily alerted for fire suppression missions in any of the Western States.

Each pueblo or group of the SWFFF has distinctively colored helmets with individual insignia and they take pride in their exceptional stamina and effectiveness on the fire line.

BLM first used the SWFFF in 1954 when six crews with liaison officers were dispatched by plane to suppress a fire near Wheatland, Wyoming. The work done by these six crews was so spectacular that calls for their services were soon being received from other states. By the end of the 1961 fire season, these crews had aided in controlling big fires in six western States.





# Lands and Minerals

## LANDS AND MINERALS PROGRAMS

One of the most urgent jobs which demands the efforts of the Lands and Minerals Management Division at this time is a complete inventory and classification of all national land reserve in the State of New Mexico.

The Secretary of the Interior declared a moratorium on February 14, 1961, on the filing of most types of land applications in order to permit a reduction of the Bureau's backlog of un-closed land cases and to provide an opportunity to classify the public domain lands in advance of the receipt of individual applications.

Work on this classification program has been started and the State has been divided into 23 tentative units for study purposes. These units comprise a recognizable area having topographic and economic similarity or relationship. Each will be inventoried and further divided into planning project areas according to their highest use under the "Multiple Use" concept.

The initial "Master Unit" study has been completed in the San Juan unit of Northwestern New Mexico, which is the first area to be approached. Detailed inventory and classification studies are in progress for the planning project areas within this unit. Seven additional work units are scheduled for completion during this fiscal year.

The term "Multiple Use" perhaps needs clarification because it means different things to different people. The object of multiple-use management on the national land reserve is to get the best combination of uses and services for the greatest benefit to the American people. These uses and services include water, timber, grazing, wildlife, and recreation.

*The Kennecott copper mine in Santa Rita is the largest open-pit mine in New Mexico.*

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Recrea



# *tion for Everyone*

## **RECREATION AND MULTIPLE USE**

The President's Special Message to Congress on Natural Resources, and the various directives of the Secretary of the Interior have given a new impetus to the recreational program for all Federal agencies.

The increase in urban populations, higher standards of living with more leisure time, and availability of swift and comfortable transportation equipment — all these influences have sparked a tremendous increase in demand for recreation areas where the American Public can pursue outdoor hobbies with enthusiasm. Never before have they been so alert to and so absorbed in this subject. A recent survey shows that fifty million Americans fished or hunted in 1960.

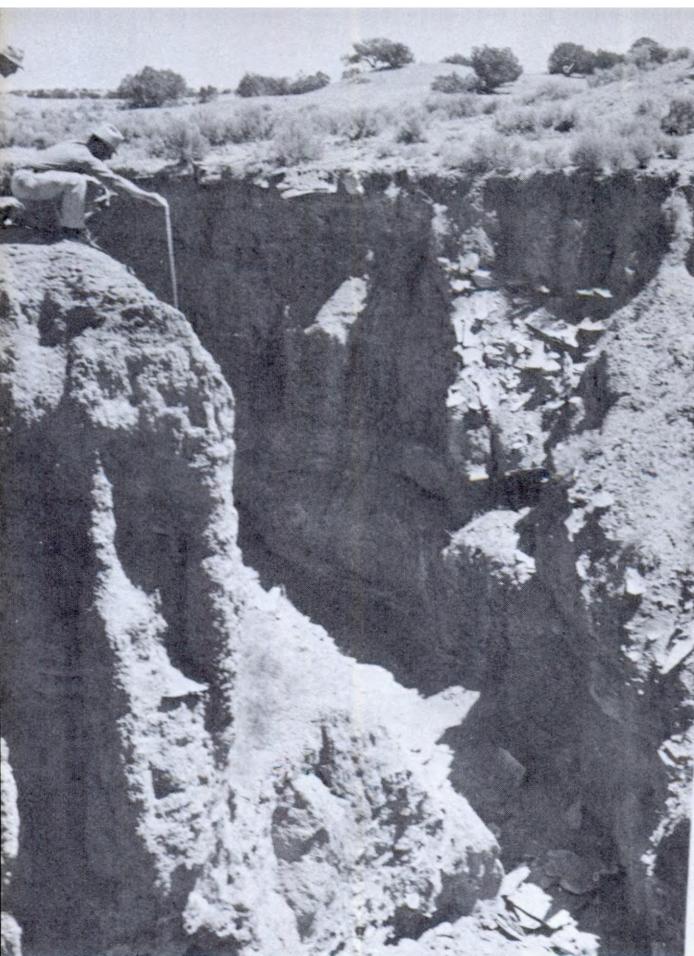
The Bureau of Land Management in New Mexico has launched an expanded recreation program in keeping with the accelerated need. BLM is now working cooperatively with the State of

New Mexico on a 10,000-acre area embracing the Rio Grande Gorge in the northern part of the State which is being classified and will be developed as a public recreation area.

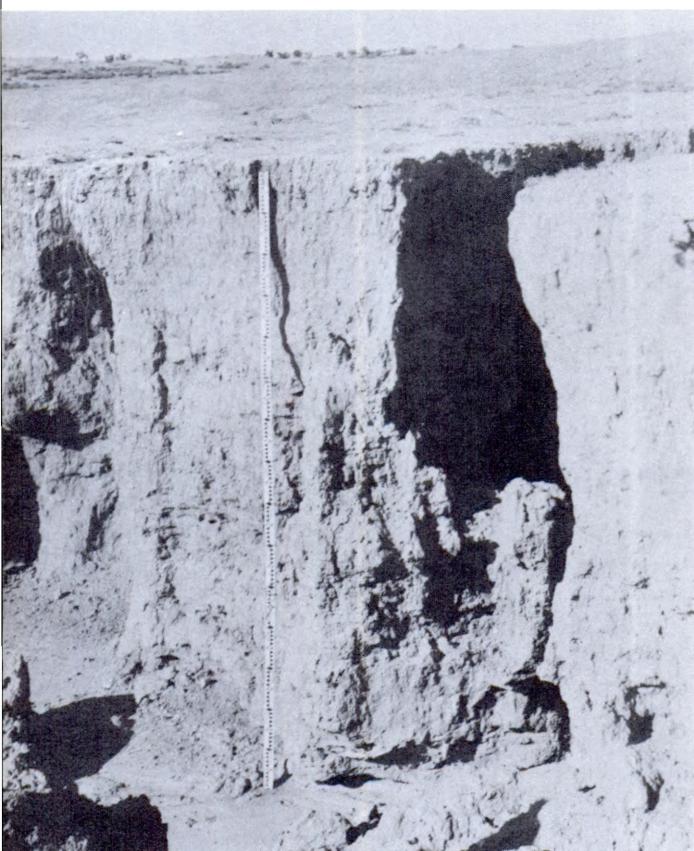
The segments of this area which can be intensively developed by the State will be sold to them under the Recreation and Public Purposes Act at \$2.50 per acre.

The remaining portion of the area which has recreational values but does not lend itself to intensive development will be classified for recreational purposes but retained in Federal ownership for balanced use. An appreciable amount of the Rio Grande Gorge will retain its present character.

Other smaller programs are being worked out with county and local governments throughout the state.



*Deep gullies in the . . .*



*Rio Puerco watershed.*

## **SOIL AND MOISTURE CONSERVATION**

One of the most urgent needs in land management in the State of New Mexico today is to halt the disastrous soil erosion that is ruining large areas of public domain in the headwaters of the Rio Grande.

These lands have probably suffered a longer historical period of misuse, uncontrolled grazing, and general neglect than any comparable area in the United States. For more than 300 years the character of the climate and the nature of the soil have combined to make drastic erosion inroads on lands laid bare by overgrazing.

Due to these centuries of prior misuse, the Bureau of Land Management finds itself fighting a losing battle over the years in efforts to control and rehabilitate watersheds that have become wasteland. Time is running out! New urgency and higher priority, plus more money, must be thrown into this fight to win before it is too late.

An outstanding example of ruinous erosion is to be found in the Rio Puerco drainage. This drainage area embraces about 3,750,000 acres, or about 20 percent of the headwater area of the Rio Grande above Elephant Butte Dam. The Rio Puerco contributes about 6 percent of the water for Elephant Butte Dam — and the astonishing figure of about 56 percent of the sediment deposited in the Elephant Butte reservoir. This is an appalling contrast between water production and sediment deposit.

Protection and land treatment by mechanical means are appropriate and effective in many of the areas susceptible to land treatment. Prolonged droughts have contributed to the spread of worthless and low-value plants in most of the depleted areas.

BLM strives to the limit of fiscal resources to carry out such practices as will provide effective protection and maximum use of the moisture which becomes available from rain and snow. On the basis of inspection and evaluation of each site, BLM employs the most economical means to increase water infiltration, improve vegetal coverage, and reduce water and soil losses.

The soils throughout New Mexico are highly erodible. Gullies have commonly torn valley bottoms into arid wasteland. BLM constructs detention dams, diversion dams and drop structures at gully cuts to prevent further devastation upstream and to minimize downstream cutting.

## MINERALS CLASSIFICATION AND INVESTIGATION

Mineral resources are a necessary and basic part of the economy of New Mexico. Without mineral fuels for power and lubrication, metal tools and alloys, and mineral fertilizers for agriculture, the economy of the State would be drastically handicapped.

Two classes of mining claim locations are provided for in the General Mining Laws of 1872. The lode locations are for valuable mineral deposits occurring as veins or lodes of quartz or other rock in place. The placer locations are for valuable deposits of unconsolidated material and other forms of mineral deposit other than those found in place.

A leasing system is provided in the Act of February 15, 1920, whereby oil and gas, potassium, sodium, phosphate and oil shale can be extracted and developed by private enterprise. These resource materials are a major contribution to the State's economy.

Direct sale of minerals from the public land is provided for in the Action of July 23, 1945. This group of minerals includes the common varieties of sand, gravel, stone, pumice, cinder, etc. The minimum purchase is one dollar, and sales of over \$100,000 have been made. Any sales amounting to over \$1,000 are by advertising and bid.

As the nation continues to grow, so will the need for land use and mineral resources. To meet this challenge, the minerals activity must identify all mineral areas. These are broad areas which are known to contain mineral resources or where they are most likely to occur.

The next step will consist of field examination and investigation of these areas. Much of this work will be done in cooperation with the Geological Survey of the U. S. Department of the Interior.



*A view of mineral material in place located by a lode mining claim.*



*A gravel bar along a river. Valuable placer deposits of gold are sometimes found in river gravel and may be located as a placer mining claim.*



*Electronic surveying*



*Oldest corner-stone*



*Surveyor team at work*

# *Surveying the Land Reserve*

## **ENGINEERING DIVISION**

Public land surveys are a major responsibility of BLM for all Federal land. Surveying is an important aspect of the Engineering Division.

These surveys are made in accordance with laws developed by early Congresses after much debate. Historically they have played an important part in the expansion and development of our country from Ohio westward.

Cadastral surveys, in the basic sense, create boundaries of tracts within the large areas acquired by the United States through treaty or purchase. A survey is mandatory to identify the specific smaller areas before they can be legally acquired or used by an individual or agency.

Cadastral surveys include not only the original survey of public domain, but also the resurvey of those areas where the old corner monuments have been obliterated or destroyed by the elements or man. About 80 percent of their surveys consist of finding old boundaries laid down many years ago and re-establishing the original markers.

The Division of Engineering is interested in the possibility that the use of radioactive isotopes, installed within the regular brass corner markers, may solve this problem for the future. As long as the isotope stays put, the exact position could be located with a radiation counter even though the brass marker were buried or moved. The amount of radioactive material involved is about the same used on an ordinary wrist watch.

There is urgent need for surveys in administration of range and forest lands. Requests are received from oil and gas supervisors of the Geological Survey to determine proper oil well spacings and pro rata divisions.

The Forest Service of the U. S. Department of Agriculture is presently engaged in establishing boundaries of the National Forests in the Western States. This work involves searching out the monuments installed in rugged country some generations ago and now lost, strayed or stolen — or covered with brush and earth-fill in many cases.

The Bureau of Indian Affairs has need for surveys and re-surveys to clarify the holdings of various Indian tribes and pueblos. Most extensive of these are the contiguous holdings of the Navajos and Utes whose needs arise from problems in connection with leasing.



*Diversion dike above a headcut.*

## RADIO COMMUNICATIONS

Since 1953, BLM has established a two-way VHF radio communications network throughout New Mexico. This has proven an indispensable tool in connection with fire control, and in providing safety for field employees working in remote areas.

The mobile-repeater radio system includes about 65 units which are located in 6 offices, in 35 vehicles and on 10 mountain tops. Pack sets are also used, primarily in connection with fire suppression.

Tone control for the mountain-top base stations serves to avoid interference among stations.

A communications engineer has been employed to maintain the radio network in good operating condition.



*Sediment barrier structure.*  
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# Land Office

The Land Office is the principal contact of BLM with the general public. As the custodian of the official land status records, it receives and answers thousands of inquiries yearly from those who seek information regarding availability of public land or who first obtained title from the United States on specific tracts.

It also receives and processes all applications for use of national land reserve and its resources except grazing. During fiscal year 1961 the Land Office processed 84,121 applications relating to mineral leases and 1,695 applications relating to acquisition of title or right to use the national land reserve under non-mineral laws.

To facilitate the development of the oil and gas resources, more than 3,800 pipeline rights-of-way have been granted by the Land Office.

Under the system of simultaneous filings which prevailed during fiscal year 1961 there were 73,148 offers to lease filed for public lands in New Mexico.

Successful bidders were selected by public drawing and approximately \$28,000,000 in advance rental was returned to the unsuccessful applicants.

Work to be done includes the elimination of the present backlog of 1,900 lands cases and 3,000 minerals cases. The lands cases include applications from individuals for public lands under the homestead, desert land, public sales and small tracts acts.

Further applications under these acts may not be accepted during the 18-month moratorium which began in February of 1961.

Mineral leasing is the most prolific use of the public domain in New Mexico. The following table is offered for comparison purposes.

As of June 30, 1961, there were outstanding 13,735 oil and gas leases on the public lands in New Mexico, embracing 9,825,000 acres. Of these leases, 3,300 have the accounts maintained by the Oil and Gas Supervisor because they are producing oil or gas or are committed to producing unit agreements.

During 1961 the following mineral production was obtained from public domain (approximate figures).

Oil . . . . .	31,917,000 Bbls.	valued at \$88,300,000.00
Natural Gas . . . . .	311,450,000 MCF	valued at 38,700,000.00
Liquid Petroleum Gas . . . . .	162,400,000 Gals.	valued at 7,440,000.00
Potash . . . . .	12,630,000 Tons	valued at 67,400,000.00

Total value of the extracted minerals is in excess of \$202,000,000.

Revenue to the United States from mineral leasing in the State of New Mexico included;

Oil and Gas lease rental . . . . .	\$ 2,150,000.00
Oil royalty . . . . .	10,660,000.00
Gas royalty . . . . .	320,000.00
Potash royalty . . . . .	3,060,000.00

Total mineral revenue of slightly more than \$21,000,000.



This lease is producing oil while the surface produces feed and cotton.



Located in northern New Mexico are the oddly shaped "Tent Rocks". These weird formations are the result of volcanic action in the Valle Grande during Pleistocene times, some three million years ago.

*The Scaled Quail, a fine game bird, abounds in natural habitat areas in New Mexico.*



*Woodland campsite in the  
Sangre De Cristo Mountains  
of northern New Mexico.*







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